



**STATE OF TENNESSEE  
DEPARTMENT OF HEALTH  
ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL  
Lab Services - Jackson Regional Lab  
Jackson, TN 38301  
731-426-0686

TDH: Lab Services KRL  
Lab Services - Knoxville Regional Lab  
Knoxville, TN 37920  
865-549-5201

TDH: Lab Services NCL  
Lab Services - Nashville Central Lab  
Nashville, TN 37243  
615-262-6300

**Sent To:** Geoff Klein  
TDEC-DWS  
200 East Race St  
Knoxville, TN 37763

**Lab ID:** N00005471  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using  
good laboratory practices and in accordance with federal or state  
approved methodologies.

*Susan Burch Steid for Anthony Wilson*  
Analytical Supervisor

**Lab-Sample Number:** N00005471001  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 12/14/2009 08:40  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 12/14/2009 11:20  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/15/2009				M Pattanayek	12/15/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/15/2009
Barium	16	µg/L	2.5	5	M Pattanayek	12/15/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/15/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/15/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/15/2009
Cobalt	0.065J	µg/L	0.04	1	M Pattanayek	12/15/2009
Lead	U	µg/L	0.10	1	M Pattanayek	12/15/2009
Manganese	U	µg/L	0.42	1	M Pattanayek	12/15/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/15/2009
Thallium	0.10J	µg/L	0.03	1	M Pattanayek	12/15/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/15/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	M Pattanayek	12/15/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00005471002  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 12/14/2009 08:45  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
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**Priority Date:**  
**Date/Time Received:** 12/14/2009 11:20  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/15/2009				M Pattanayek	12/15/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/15/2009
Barium	21	µg/L	2.5	5	M Pattanayek	12/15/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/15/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/15/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/15/2009
Cobalt	0.29J	µg/L	0.04	1	M Pattanayek	12/15/2009
Lead	0.60J	µg/L	0.10	1	M Pattanayek	12/15/2009
Manganese	57	µg/L	0.42	1	M Pattanayek	12/15/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/15/2009
Thallium	0.083J	µg/L	0.03	1	M Pattanayek	12/15/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/15/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	M Pattanayek	12/15/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00005471003  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 12/14/2009 09:40  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 12/14/2009 11:20  
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**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/15/2009				M Pattanayek	12/15/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/15/2009
Barium	22	µg/L	2.5	5	M Pattanayek	12/15/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/15/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/15/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/15/2009
Cobalt	0.052J	µg/L	0.04	1	M Pattanayek	12/15/2009
Lead	U	µg/L	0.10	1	M Pattanayek	12/15/2009
Manganese	0.70J	µg/L	0.42	1	M Pattanayek	12/15/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/15/2009
Thallium	0.049J	µg/L	0.03	1	M Pattanayek	12/15/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/15/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	M Pattanayek	12/15/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00005471004  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 12/14/2009 09:45  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 12/14/2009 11:20  
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**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/15/2009				M Pattanayek	12/15/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/15/2009
Barium	25	µg/L	2.5	5	M Pattanayek	12/15/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/15/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/15/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/15/2009
Cobalt	0.12J	µg/L	0.04	1	M Pattanayek	12/15/2009
Lead	0.21J	µg/L	0.10	1	M Pattanayek	12/15/2009
Manganese	10	µg/L	0.42	1	M Pattanayek	12/15/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/15/2009
Thallium	0.044J	µg/L	0.03	1	M Pattanayek	12/15/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/15/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	M Pattanayek	12/15/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**



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Nashville, TN 37243  
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**Lab ID:** N00005471  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using good laboratory practices and in accordance with federal or state approved methodologies.

  
Analytical Supervisor

**Lab-Sample Number:** N00005471001  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 12/14/2009 08:40  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 12/14/2009 11:20  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	49	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	38	mg/L	0.7	1	M Chen	12/14/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

Lab-Sample Number: N00005471002  
Project Name:  
Sample Description: KINGSTON WTP  
Sampler Project Name: RAW  
Project Site No.:  
Station No.:  
Date/Time Collected: 12/14/2009 08:45  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 12/14/2009 11:20  
Received By: P Singh

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	50	mg/L	3.8	10	M Chen	12/15/2009	

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	38	mg/L	0.7	1	M Chen	12/14/2009	

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected



Lab-Sample Number: N00005471003  
Project Name:  
Sample Description: ROCKWOOD WTP  
Sampler Project Name: FINISH  
Project Site No.:  
Station No.:  
Date/Time Collected: 12/14/2009 09:40  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 12/14/2009 11:20  
Received By: P Singh

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	61	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	49	mg/L	0.7	1	M Chen	12/14/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected

Lab-Sample Number: N00005471004  
Project Name:  
Sample Description: ROCKWOOD WTP  
Sampler Project Name: RAW  
Project Site No.:  
Station No.:  
Date/Time Collected: 12/14/2009 09:45  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
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Priority Date:  
Date/Time Received: 12/14/2009 11:20  
Received By: P Singh

**Field Determinations**

pH:

Chlorine, residual:

Conductivity:

Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	54	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	50	mg/L	0.7	1	M Chen	12/14/2009

**J - Estimated value between MDL and MQL****MDL - Method Detection Limit****MQL - Method Quantitation Limit****U - Undetected**